Research Reports

Symptom Sensitivity: Its Social and Cultural Correlates

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This study summarizes a preliminary analysis of pretest data being gathered in a five-year study of health insurance in Los Angeles by the UCLA School of Public Health. One of the major purposes of the overall study is to examine factors that determine utilization of physicians' services and consumer satisfaction with the care received. In the development of a model to identify the potential major determining factors, it became evident that one of these factors would pertain to the consumer's perception of symptoms and his resulting orientation toward action or inaction. A method for measuring such perception of symptoms, here termed "symptom sensitivity," is presented, with an exploratory examination of the extent to which this perception is related to sociocultural characteristics.

Symptom sensitivity may be defined along two dimensions: the attitudinal dimension, in which the person recognizes or does not recognize an objectively existing physical condition as a symptom of illness, and the behavioral dimension, in which he acts or does not act to relieve the condition. Following Koos in his study of Regionville [1], we elected to investigate only one combination of these dimensions: the symptom-sensitive person in this study is one who thinks that a given symptom is serious enough to see a doctor about. This approach does not separate out the person who might recognize a symptom as a sign of illness but would deal with it himself.

METHODOLOGY

To develop a method for measuring the symptom sensitivity of respondents, a short list of readily identifiable symptoms, of various degrees of

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seriousness, was compiled. The list was derived from consultation with medical advisers and from a review of the literature cited elsewhere in this report dealing with similar problems. In order to determine as nearly as possible the actual seriousness of each of the eight symptoms on the list, a panel of 10 practicing community physicians was selected and asked to judge each symptom and rate its seriousness on a five-point scale with reference to their experience of illness concomitant with the symptom. From the 10 scores obtained for each symptom, an average weight from 0 to 4 was computed, with the highest weights reflecting least seriousness. Computed weights are given in Table 1.

Table 1. Symptom Weights Derived from Ratings by Panel of Physicians

(In order of decreasing seriousness)

Symptom	*Weight*
Blood in the urine	0.60
Chest pain	0.78
Unexplained weight loss	0.85
Persistent joint or muscle pain	2.00
Frequent sore throats	2.23
Gaseousness	2.50
Allergy	3.00
Insomnia	3.02

The resulting eight-item measure of symptom sensitivity was applied to a sample of 238 subscribers to three major health insurance plans in Los Angeles. These subscribers are all employed by a single federal agency in the city and have the option of choosing from among several health plan alternatives through the employment group. The sample consisted of subscribers who volunteered to participate in the study, which, from the perspective of the main project, was viewed as a pretest for the subscriber questionnaire. Symptom sensitivity was included as a question in which the respondent was asked to place a check mark beside those of the eight listed symptoms which he considered "serious enough to see a doctor about." Each respondent was then assigned a symptom sensitivity score that was a total of the previously computed weights of the symptoms he checked off. The scores ranged from 0 for those checking no symptoms at all to 14.98 for those checking all eight.

The eight-item measure used was subjected to Guttman analysis to determine its scalability, and a coefficient of reproducibility of .92 was obtained. This indicates that a given score at any point along the distribution in Figure 1 was likely to have been obtained by respondents checking the same symptoms. In other words, for the column 6–7.9, it may be reliably assumed that the symptoms checked by the respondents represented by that column were blood in the urine, chest pain, unexplained weight loss, persistent joint or muscle pains, and frequent sore throats. This is highly probable, even though the same range of scores could be obtained by checking off a different combination of symptoms (insomnia, allergy, and blood in the urine).

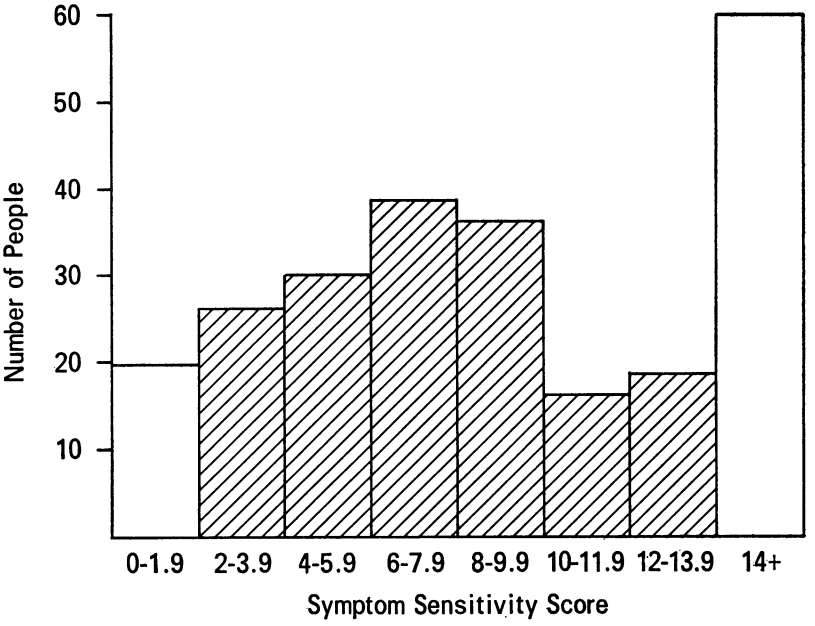

Fig. 1. Distribution of symptom sensitivity scores ($N = 238$).

For purposes of analysis, the sample was divided into three groups on the basis of the symptom sensitivity scores. In the first group (symptom-insensitive) are included those respondents who failed to check symptoms that the panel of physicians rated on the "serious" half of the scale. The second group (symptom-sensitive) includes those who essentially agreed with the physicians as to which symptoms were serious enough to require medical attention. The third group (hypersensitive) comprises those checking symptoms that the physicians rated on the "trivial" half of the scale.

The symptom-sensitive persons were thus thought of as those with "appropriate" responses to the symptoms in the list, while the other two groups were "inappropriate" in their responses. The problem for analysis was to determine which demographic, cultural, socioeconomic, and composite characteristics were related to an inappropriate, or "deviant," response. It was believed that different independent variables would be associated with each of the two types of deviant response. Statistical tests were therefore performed both for symptom insensitivity–symptom sensitivity differences and for symptom hypersensitivity–symptom sensitivity differences.

FINDINGS

Figure 1 shows the distribution of the symptom sensitivity scores. This histogram is not a representative picture of a defined population, since the

sample was self-selected. It was expected that the scores would display a distribution approximating the normal curve, with few respondents checking no symptoms at all or only one and few checking every symptom. Unexpectedly, although the distribution does approximate normality, a large percentage (about 25 percent) checked all symptoms.[1]

Two explanations for the results are suggested. It is possible that a certain percentage of the respondents checking all eight symptoms were not actually reflecting symptom sensitivity but were merely indiscriminate in filling out the questionnaire. Another possibility is that if additional trivial symptoms were included in the measure, the full distribution might be bimodal, with a peak occurring between 6 and 8 and another at about 15, the first peak representing respondents sensitive to symptoms rated by physicians on the "serious" side of the scale, up to and including "frequent sore throats," and the second, respondents sensitive to symptoms judged "trivial" by the panel of physicians.[2]

DISCUSSION

Demographic Variables

After analysis of the distribution of symptom sensitivity scores by demographic, cultural, and socioeconomic variables, the demographic variables age, sex, and marital status were tested for their relation to combinations of the three categories of sensitivity [2]. Thus, for example, the age variable was divided into "young" (20–34), "middle-aged" (35–54), and "old" (55 and over) and run against symptom hypersensitivity–symptom sensitivity differences and also against the symptom insensitivity–symptom sensitivity groups.

Table 2 (p. 68) shows control runs on the age/hypersensitivity relation. It was suspected from the earlier analyses that a tendency for the middle-aged to be hypersensitive would probably be specified for those who (1) had highly responsible occupational positions, (2) were female, and (3) were unmarried. Sample size made the simultaneous testing of these conditions impossible, so each one was run separately. For occupational levels, as measured by the Hollingshead seven-category scale [3], the middle-aged were more hypersensitive for the upper two categories ($X^2 = 4.67$, $df = 1$, significant at $\alpha = .05$). Hollingshead designates these two categories "higher executives and major professionals" and "business managers and lesser professionals." Possibly it is the stressful nature of the work of respondents in these

[1]The form of the distribution raises doubts as to the applicability of certain statistical techniques, such as regression analysis, to the data, hence the chi-square statistic is used in this study as the major means of analysis.

[2]In later studies it is planned to add three symptoms of a trivial nature in order to avoid the pile-up of respondents at the extreme end of the scale. Randomly selected samples of respondents will be used.

categories that leads to a greater awareness of symptoms such as insomnia, allergy, and gaseousness [4–6].

The control run for sex indicated a statistically significant relation between age and hypersensitivity among the females ($X^2 = 7.98$, $df = 1$, significant at $\alpha = .05$). The most strikingly hypersensitive females were the middle-aged, with 85 percent hypersensitive, as compared with 29 percent of the "young" group. The control for males revealed that males and females in the 20–34 year group responded quite differently to the symptoms on the "trivial" end of the scale, with a larger percentage of males being hypersensitive (67 percent) than females (29 percent).

Finally, the relation between age and hypersensitivity was found significant for widowed, divorced, and separated respondents. The difference in hypersensitivity between single and married people was significant only for the over-55 group, where all the single people but only 49 percent of the married were hypersensitive. Middle-aged people at some stage of withdrawal from marriage were much more likely to be hypersensitive (100 percent of those in the sample) than either their younger or their older counterparts. Looking at it another way, 88 percent of those 35 and over who were widowed, divorced, or separated were symptom-hypersensitive; 100 percent of those under 35 with the same marital status were symptom-sensitive. Although the cell sizes are small, the data strongly suggest that the trauma associated with losing a spouse in middle age or later is a predisposing factor in hypersensitivity.

Cultural Variables

Considerable work has already related cultural characteristics of people to their response to illness and pain [7–12]. The theory underlying this work is straightforward, involving the explanation of individual attitudes and behavior in terms of the influence of socialization by significant reference groups. In the present analysis, the significant cultural groups examined are the religious and the ethnic.

Tentative hypotheses tested in attempts to establish a relation between religion and type of symptom response included the suggestion found in other studies [13,14] that Jews tend to be hypersensitive and Catholics relatively stoical or insensitive and the hypothesis that belonging to a religious group with low acceptance in the community might be a factor contributing to stress, resulting in a greater attention to physical symptoms. Neither of these hypotheses was confirmed.

A third hypothesis was generated, turning from considering the religious community as a reference group, as in the second hypothesis, to considering the influence that type of religion itself might tend to have on members. This influence can be thought of as on a continuum of "formalism," with "no religion" defining the least formal end of the continuum and Catholicism and Judaism the most formal end. Table 3 presents such a continuum and shows the percentage hypersensitive in each category. As formalism increases, so

Table 2. Age and Symptom Hypersensitivity: Percent Distribution by Occupational Level, Sex, and Marital Status

Age	Total		SS		SH		SS		SH		SS			SH		
	No.	%	Occupational level: High	Low	High	Low	Sex: M	F	M	F	Marital status: Married	Single	Other	Married	Single	Other
Under 34	40	100	8	32	15	45	28	12	55	5	25	2	13	52	8	0
35–54	88	100	9	19	23	49	25	3	52	20	26	2	0	56	8	8
55 and over	56	100	23	22	10	45	36	9	37	18	41	0	4	39	4	12
Total number	184		24	42	32	86	53	13	89	29	56	3	7	92	12	14

Table 3. Formalism of Religion and Symptom Hypersensitivity: Percent Distribution by Occupational Level and Ethnic Status

Formalism	Total		SS		SH		Total		SS		SH	
	No.	%	Occupational level: High	Low	High	Low	No.	%	Ethnic status: High	Low	High	Low
Catholic, Jewish (most formal)	49	100	8	20	20	52	36	100	17	17	41	25
Established Protestant	90	100	13	21	20	46	75	100	32	3	62	3
Sectarian	30	100	10	33	13	44	22	100	36	9	46	9
No religion (least formal)	16	100	31	25	0	44	14	100	57	0	29	14
Total number	185		24	43	32	86	147*		46	10	76	15

*Total number for ethnic groups is lower because only those groups that could be classified as high or low were included. "High" comprises United States whites, Canadians, British, and Scandinavians; "low" comprises Italians, Russians, Poles, Mexicans, and United States nonwhites.

does hypersensitivity. The Catholics and Jews were significantly more hypersensitive than those with no religion ($X^2 = 3.94$, $df = 1$, significant at $\alpha = .05$); the established Protestants (the older major Protestant denominations) tended to be more hypersensitive than those with no religion ($X^2 = 2.80$, $df = 1$, not significant at $\alpha = .05$); and the sectarians (later offshoots of the major denominations) demonstrated the same tendency when compared with those of no religion, but less markedly ($X^2 = .65$, $df = 1$, not significant at $\alpha = .05$). When the relation between formalism and hypersensitivity was controlled, it was maintained for those with high occupational ratings and for those with high-status ethnic backgrounds.

An in-depth analysis of the relation between religion and hypersensitivity is not attempted here but would provide an interesting point of departure for future analysis. "Formalism" in religion is not suggested as a singular determinant of hypersensitivity but rather as a possible clue to a range of influences that might tend to curtail free self-expression and thus produce stress leading to hypersensitivity. This concept is not novel: Wolff [15] has documented the tendency toward development of somatic symptoms as inappropriate responses to stress. The step from actually experiencing symptoms to the type of hypersensitivity involved in this study might perhaps represent a rationalizing and legitimizing process in which symptoms are liberally identified as forms of illness requiring medical attention.

Analysis of the relation between ethnic status and symptom sensitivity was approached through identification of cultural groupings in the community that are relatively isolated and thus might be expected to reinforce norms of behavior peculiar to their own members rather than the norms of society at large. Indexes of isolation for ethnic groups in Los Angeles were obtained from the social area analyses of Shevky and Williams [16] and of Bell [17], which assigned relatively high isolation indexes to Orientals, Mexicans, Italians, Russians, and Negroes as compared with the native white population. A statistical test was run comparing the symptom sensitivity of those with United States white, Canadian, British, and Scandinavian backgrounds with the symptom sensitivity of Italians, Russians, Poles, Mexicans, and Negroes (there were no Orientals in the sample). The chi-square test statistic was significant only when the Negro population was taken out of the analysis, with the more highly isolated groups in the community loaded heavily (69 percent) in the symptom-insensitive category ($X^2 = 4.14$, $df = 1$, significant at $\alpha = .05$).

In the statistical tests reported here, the comparison of different groups may be thought of as identifying respondents who are most closely socialized to the "acceptable" middle-class standards of behavior in the society at large with regard to response to symptoms of illness. From this viewpoint it is not surprising to find the highly isolated groups most divorced from the general norms. The close association between Negro and white responses is probably a reflection of the high degree of assimilation of middle-class white values by the *achieving* Negro. One cannot project from this sample what the response of all Negroes and other highly isolated group members would be, since all

the respondents in this study are employed, have occupations and educations that rate them no lower than Class IV on Hollingshead's Two-factor Index of Social Position, and are covered under group health insurance plans.

The relation between low-status ethnic background and symptom insensitivity is specified for respondents who have higher occupational ratings than their fathers (upward intergenerational mobility). Percentages from the control run are given in Table 4. Such people might be expected to be hypersensitive, because of the stress of rising from low backgrounds, interacting in

Table 4. Ethnic Status and Symptom Insensitivity: Percent Distribution by Occupational Mobility

Ethnic status*	Total		SI		SS	
	No.	%	Downward mobility or none	Upward mobility	Downward mobility or none	Upward mobility
High	78	100	15	26	14	45
Low	18	100	22	39	11	28
Total number	96		16	27	13	40

*"High" ethnic status refers to United States whites, British, Canadians, and Scandinavians; "low" ethnic status refers to Italians, Russians, Poles, Mexicans, and United States nonwhites.

disparate status levels, and the like. On the other hand, it is possible that they tend to overemphasize the values of their origin group in order to retain some identification with, for instance, their ethnic background—a tendency that might be manifested, with respect to health, in a casual attitude toward the less acute symptoms, as a refutation of the values of the health-conscious middle and upper-middle classes to which they have risen and a confirmation of the lower-class values of independence, ruggedness, and self-sufficiency.

Socioeconomic Variables

If those whose scores place them in the symptom-sensitive group represent respondents whose values closely approximate the generally acceptable response with regard to perception of symptoms, the middle and upper categories for the three socioeconomic variables—education, occupation, and income—should contain more of this type of respondent. The hypothesis was tested that those with education below the college level would be less likely to respond appropriately (i.e., less likely to appear in the symptom-sensitive group) than those with a college education, if education is considered an instrument for increasing rational response as well as for socialization. Chi-square tests did not bear this out, and the data only faintly reflected the hypothesis. Occupation also was unrelated to symptom sensitivity.

Income was found to be related to symptom response (Table 5, p. 72): those with low incomes (below $9000 per family per year) were significantly more symptom-insensitive than those with higher incomes ($X^2 = 4.35$, $df = 2$, significant at $\propto = .05$). This relationship was controlled for a number of variables (again, it was not possible to do so simultaneously because of small cell sizes), with statistical significance retained for respondents with high-status ethnic backgounds ($X^2 = 4.80$, $df = 1$, significant at $\propto = .05$) and for those who were downwardly mobile or not mobile occupationally compared with their fathers ($X^2 = 4.50$, $df = 1$, significant at $\propto = .05$). A higher level of significance was attained when the relationship was controlled for religion, with those of high-status religion and low income markedly symptom-insensitive ($X^2 = 10.2$, $df = 1$, significant at $\propto = .005$).

The direct relation between income and symptom insensitivity at first seems surprising, since all the respondents were covered under some form of health insurance and this might have been expected to reduce the influence of financial resources on reactions to symptoms of illness. Even with health insurance, however, those with limited incomes are likely to recognize that visits to a physician are usually accompanied by some out-of-pocket expenditure and thus might hesitate to seek medical aid except for serious conditions.

The controls on this relationship for ethnic status and religion lead to a consideration of status crystallization, which is taken up in the next section.

Composite Variables

In this section, the study deals with measures—social class and status crystallization—that are established by the combination of various variables previously reported. The social class variable is measured by Hollingshead's Two-factor Index of Social Position, involving education and occupation; the status crystallization variable is a composite of the socioeconomic and cultural variables, measuring the extent to which these characteristics are congruent for each respondent in the study.

Previous research [18–20] has indicated a relation between status crystallization and the manifestation of symptoms of illness, those with incongruent social, economic, and cultural characteristics being more likely to develop symptoms as a result of stress. Jackson [19] has advanced the hypothesis that status inconsistency involving a combination of high ascribed and low achieved characteristics would produce stress and therefore more symptoms. (It should be noted that Jackson was dealing with a behavioral variable, namely, rate of actually *experiencing* certain symptoms of illness, whereas the dependent variable in the present study is an orientational one, involving *action anticipated* if certain symptoms were experienced.)

The results in Table 5 suggest that the combination of high ascribed and low achieved characteristics (high ethnic and religious status vs. low income) is associated in this study with *symptom insensitivity,* while Jackson's data indicate that this same combination is associated with a *higher symptom rate.* These results are not contradictory, since those in the lower income brackets might be expected to experience more illness but also to be less likely to

Table 5. Income and Symptom Insensitivity: Percent Distribution by Ethnic Status, Social Status of Religion, and Occupational Mobility

Income	Total		SI		SS		Total		SI		SS		Total		SI		SS	
	No.	%	Ethnic status:* High	Low	High	Low	No.	%	Status of religion:† High	Low	High	Low	No.	%	Occupational mobility: Downward or none	Upward	Downward or none	Upward
Under $9000	26	100	42	19	27	12	29	100	34	28	3	35	29	100	31	28	10	31
Over $9000	70	100	25	11	54	10	89	100	20	18	34	28	86	100	10	28	17	45
Total no.‡	96		28	13	45	10	118		28	24	31	35	115		18	32	18	47

*"High" ethnic status refers to United States white, British, Canadian, and Scandinavian groups (high status, low isolation); "low" ethnic status refers to Italian, Russian, Polish, Mexican, and United States nonwhite groups (low status, high isolation).

†"High status" religions are here considered to be the established Protestant churches; "low status" the Catholic, Jewish, and sectarian and no religion.

‡Total numbers differ because of nonresponse to some questions.

Table 6. Percent Distribution of Symptoms Checked, by Social Class

Symptom	All classes, average	Social class* I	II	III	IV
Blood in the urine	94	93	100	94	91
Chest pain	89	86	96	90	85
Unexplained weight loss	79	74	91	80	74
Persistent joint or muscle pain	74	81	74	75	67
Frequent sore throats	74	79	70	78	61
Gaseousness	34	38	30	36	24
Allergy	57	57	48	59	56
Insomnia	38	45	39	40	28

*Numbered in order of decreasing status.

seek treatment from a physician. Jackson (who uses a crystallization measure of only four components, with religion not included) attributes the higher symptom rate to stress arising from inability or unwillingness to bring socioeconomic characteristics into line with ascribed cultural level. With regard to symptom insensitivity, as measured here, the low achieved–high ascribed pattern might be thought of as indicating a general attitude of indifference to middle-class American "success" values. The contribution of status inconsistency itself to symptom insensitivity, as opposed to simple low socioeconomic status (income level), is indicated by an improvement in significance level from .05 to .005 when the low income–symptom insensitivity relationship was specified for those with high-status religions.

Social class, as measured by the Hollingshead Two-factor Index (occupation and education), did not bear a significant relation to hypersensitivity or insensitivity. It would appear that income is the most important of the three socioeconomic variables in explaining variations in sensitivity. Table 6, showing the percentages of people in each of the four social classes who checked each symptom on the list, indicates that for this sample, the clear pattern that emerged from the Koos study [1, p. 32] is not found.[1] However, for each symptom the percentage of Class I (highest class) respondents is equal to or higher than that of the Class IV respondents (although the differences are not consistently great); and the upper three classes are more likely than the fourth class to consider as serious those symptoms, with the exception of

[1]Results from Koos and from this study are not readily comparable, since different lists of symptoms and different social class measures were used. It should also be noted that the Koos study was done over 15 years ago and in a rural village.

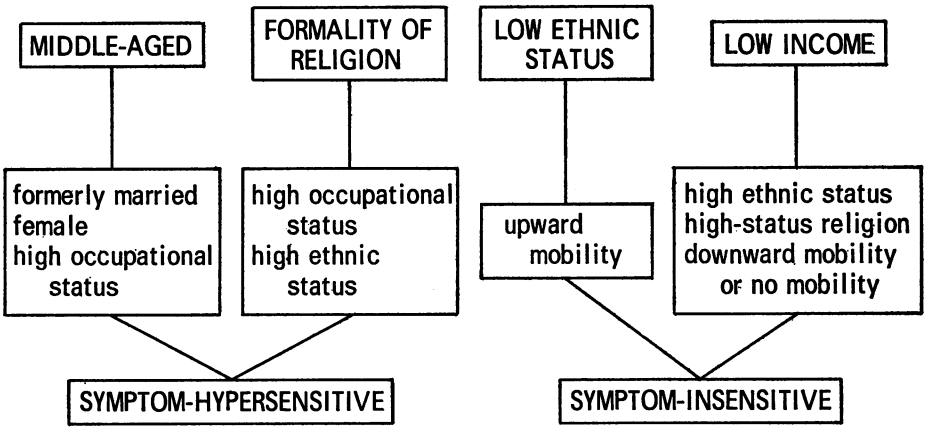

Fig. 2. Determinants of symptom hypersensitivity and symptom insensitivity (control variables in lower case).

allergy, which the physician panel rated toward the "trivial" end of the scale. This is not statistically significant, but it is possible that it would be if there were any Class V respondents in the sample. It is interesting to note also, from the average percentage column of the table, that the respondents agreed with the physician ranking of symptoms except for gaseousness, which was ranked sixth out of eight by the physicians but eighth (least serious) by the respondents in all social classes.

SUMMARY AND CONCLUSIONS

A pseudo interval-scale score was devised to measure symptom sensitivity. It was used to divide a sample of respondents to a health insurance questionnaire into three categories: symptom-insensitive, symptom-sensitive, and symptom-hypersensitive. The middle category was defined as a normative response and the two extremes as types of deviant response. Demographic, socioeconomic, and cultural independent variables were studied and the following relationships, summarized in Figure 2, were found:

1. Middle-aged respondents were significantly hypersensitive, with the relationship specified for females, the formerly married, and those in high occupational categories.

2. Increasing formality of religion was related to hypersensitivity for respondents with high-status occupations and ethnic backgrounds.

3. Low-prestige ethnic background was related to symptom insensitivity for those who were upwardly mobile occupationally as compared with their fathers (intergenerational mobility).

4. Low income was related to symptom insensitivity for those with high-status ethnic and religious backgrounds and those who were either downwardly mobile or not mobile occupationally.

5. Reactions to symptoms of illness across social class lines were less marked than those reported in the Koos study.

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